1、Overview

Thank you for using JY2X00 Emulation and Development System.

INTRUDUCTION

Adopted a new patent technology, JY-E2X00 Emulator solved the four main problems puzzling the field of MCU emulation:

First, it solved the problem of emulating the enhanced resource, which Bondoot couldn't do;

Then, it solves the problem of in Hooks, which is low emulate frequency and only supporting Philips chipsets;

And then, it solved the problem of no emulating IAP function;

Last, it solved the problem of having no special chips when we develop multipin and multifunction chips;

Consequently, a new emulation period of full, actual, direct, and high speed is coming:

Full: full support up to 500 microcontrollers that have EA, ALE, PSEN pins;

Actual: actually emulating all standard resource and enhanced resource, and does not occupy resource;

Direct: User's chip directly acts as target MCU;

High-speed: Speed up to 40MHz when accessing external RAM;

once possess of JY-E2X00 emulator:

No need to buy costly adapter;

No need to use compatibility mode, and directly support more than 500 kinds of devices;

No need to worry about the false result sometimes done by Bondout and Hooks;

1.1 FEATURES

User's chip directly acts as target chip;

Don't need design so many adapters, different devices in same pin arrangement and same package share one adapter;

It gets rid of such weak points as having to change the definition and being unable to totally cover the resources by Hooks and Boudout;

Up to 500 chips in various packages from over 20 manufacturers are supported;

Doesn't occupy any resources;

Support 12T/6T/4T devices;

Speed up to 40MHz when accessing to external RAM without pull-up resistor;

PSEN pin acts as P4.6;

Support MX2;
Support double-bank;
Support Surface Mount Devices with in-circle adapter;
Support IAP and flash being used for data flash;
Set and clear ALE randomly;
Debug in Keil as well as in JY2x00 debugger environment.

1.2 Packing List

1	JY2X00 Emulator Development System user guide	one
2	JY-E2X00 emulator Host	one
3	JY2X00 Emulator Development System Installation CD	one
4	USB2.0 cable	one
5	Power adapter	one
6	40-pin flat cable	Three
7	DIP-40 Adapter	one
8	PLCC-44 Adapter	one
9	DIP-20 Adapter	one
10	USER-40 Adapter	one
11	Quality Certificate	one
12	warranty card	one

Elective Fittings:

Adapter for various other packages
Logic Analyzer

1.3 Running environment requirement

Operation System: Windows 2000, Windows XP
Memory: Higher than 64MB
Display: Support resolution higher than 800×600
Interface: One USB or COM

1.4 Feature Comparison

EMU Model	JY-E2300B	JY-E2200B	JY-E2100B
Type	Universal	Universal	Special
Support Devices	support up to 500 chips that from over 20 manufacturers (support 51MX core and double-Bank)	support up to 500 chips that from over 20 manufacturers (support 51MX CPU CORE)	only support chips that from Atmel、 Dallas、 Philips、 SST、 STC、 Winbond(support 51MX CPU CORE)

Code Memory	Internal 128K	Internal 64K	Internal 64K
Data Memory	External 8MB	External 64K	External 64K
IAP Space	Internal 64K	Internal 64K	Internal 64K
64K real-time hardware breakpoints	Yes	Yes	Yes
External Reset	Yes	Yes	Yes
Real-Time Operation frequency	40M@12T,24M@6T, 24M@4T	40M@12T,24M@6T, 24M@4T	40M@12T,24M@6T, 24M@4T
CPU external/internal power supplies	Yes	Yes	Yes
CPU Operating Voltage	2.7V～5.5V	2.7V～5.5V	2.7V～5.5V
Supported Resources	Standard and Enhanced	Standard and Enhanced	Standard and Enhanced
expanded	Yes	Yes	Yes
emulating mode	direct	direct	direct
USB Port	Yes	Yes	Yes
Adapter	DIP-40、PLCC-44、DIP-20、USER-40	DIP-40 、 PLCC-44 、DIP-20、USER-40	DIP-40 、 PLCC-44 、DIP-20、USER-40
debugging environment	Keil or JY2X00	Keil or JY2X00	Keil or JY2X00
Select Fittings	Trace、Logic Analyzer		

1.5 Supported Devices

AD	ADuC812、ADuC814、ADuC816、ADuC824、ADuC831、ADuC832、ADuC834、ADuC836、ADuC841、ADuC842、ADuC843、ADuC844
Atmel	AT48801、AT80F51、AT80F52、AT80LV51、AT80LV52AT87F51、AT87F51RC、AT87F52、AT87F55、AT87LV52、AT87LV55、 AT89C1051、AT89C1051X2、AT89C2051、 AT89C2051X2、AT89C4051、AT89C51、AT89C5131、AT89C51AC2、AT89C51ED2、AT89C51ID2、AT89C51RB2、AT89C51RC、AT89C51RC2、AT89C51RD2、AT89C52、AT89C55、AT89C55WD、AT89C8253、AT89F51、AT89F52、AT89LS51、AT89LS52、AT89LS53、AT89LS8252、、AT89LV52、AT89LV55、AT89S4D02、 AT89S51、AT89S52、AT89S53、AT89S54、AT89S8252、AT89S8254、T80C31、T80C31X2、T80C51、T80C51FP1、T80C51RA2、T80C51RD2、T80C51U2、T80C52X2、T80C54X2、T80C58X2、T83-87C51RB2、T83-87C51RC2、T83-87C51RD2、T83-87C51RB2、T83-87C51RC2、T83-87C51RD2、T83-87C51U2、T83-87C52X2、T83C5101、T83C5102、T83C5112、T87C251G1A、T87C51、T87C5112、T89C5121、T89C51AC2、T89C51CC01、T89C51CC02、T89C51IB2、T89C51IC2、T89C51RB2、T89C51RC2、T89C51RD2、T8xC251G1D、T8xC251G2D、T8xC51SND1、TS80C31X2、TS80C32X2、TS80C51RA2、TS80C51U2、TS80C52X2、TS80C54X2、TS80C58X2、TS83C51RB2、TS83C51RC2、TS83C51RD2、TS83C51U2、TS87C51RB2、TS87C51RC2、TS87C51RD2、TS87C51U2、TS87C52X2、TS87C54X2、TS87C58X2、TSC80C31、TSC80C51
Dallas	DS5000、DS5240、DS80C310、DS80C313、DS80C320、DS80C323、DS80C390、

	DS80C400、DS82CH11、DS83C520、DS83C530、DS87C520、DS87C530、DS87C550、DS89C420
Hynix Semiconductor	GMS90C320、GMS90C51、GMS90C52、GMS90C54、GMS90C56、GMS90C58、GMS90L32、GMS90L320、GMS90L51、GMS90L52、GMS90L54、GMS90L56、GMS90L58、GMS97C1051、GMS97C2051、GMS97C51、GMS97C52、GMS97C54、GMS97C56、GMS97C58、GMS97L1051、GMS97L2051、GMS97L51、GMS97L52、GMS97L54、GMS97L56、GMS97L58、HMS9XC7132、GMS90X5X、GMS99C58
Infineon	C505-2R、C505A-4E、C505C-2R、C505C-L、C505-L、C508、C509-L、C511-R、C513A-2R、C513A-R、C513-R、C515-1R、C515-4R、C515A-L、C515B-2R、C515C-8R/8E、C515C-L、C515-L、C540U-E、C541U-2E、C868、SAB80C515、SABC501G、SABC517A-LN、SAB80C504-EM、SAB80C504-LM、SAB80C504-RM、SAB80C515C-XX、SAB80C517A-4RM、SAB80C517A-L24M、SAB80C517A-M、SAB80C517A-N、SAB83C517A-5N18、SAFC501G、SAFC517A-LN、SAF80C515C-XX
Intel	80/83/87C51SL、80/87C52、80/87C54、80/87C58、80/87L52、80/87L54、80/87L58、8031AH、8032AH、8051AH、8052AH、80C152JA、80C152JB、80C152JC、80C152JD、80C31、80C31BH、80C32、80C51、80C51BH、80C51FA、80C51GB、80C51SL、80L51FA、83/87C51FA、83/87C51FB、83/87C51FC、83/87C51GB、83/87C51RA、83/87C51RB、83/87C51RC、83/87L51FA、83/87L51FB、83/87L51FC、83C152JA、83C152JC、87C51、8XC151SA、8XC151SB
ISSI	IS80C31、IS80C32、IS80C51、IS80C52、IS80LV31、IS80LV32、IS80LV51、IS80LV52、IS89C51、IS89C52
Philips	80/87C51、80/87C52、 80C31、80C31X2、80C32、80C32X2、80C451、80C451、80C51FA、80C51RA+、80C528、80C550、80C552、80C554、80C575、80C652、80/87C51、80/87C52、83/87C451、83/87C524、83/87C528、83/87C550、83/87C552、83/87C554、83/87C575、83/87C652、83/87C654、83C51F8、83C51FA、83C51FC、83C51RA+、83C51RB+、83C51RC+、83C51RD+、87C51FA、87C51FB、87C51FC、87C51RA+、87C51RB+、87C51RC+、87C51RD+、8951RA2XX、89C51、89C51RA+、89C51RB+、89C51RB2XX、89C51RC+、89C51RD+、89C52、89C54、89C58、8XC51FA/8xL51FA、8XC51FB/8xL51FB、8XC51FC/8xL51FC、8XC51MA2、8XC51MB2、8XC51MB2/02、8XC51MC2、8XC51MC2/02、8XC51RA+、8XC51RB+、8XC51RC+、8XC51RD+、8XC52、8XC54、8XC58、P80/P87C51X2、P80/P87C52X2、P80/P87C54X2、P80/P87C58X2、P80C557E4、P80C557E6、P80C557E8、P80C562、P80C591、P80C592、P80CE558、P80CE560、P80CE598、P80CL31、P80CL410、P80CL51、P80CL580、P83/87C654X2、P83/87C660X2、P83/87C661X2、P83/P87C560、P83_P87C557E8、P83/P89C557E4、P83/P89CE558、P83C557E6、P83C562、P83C591、P83C592、P83CE598、P83CL410、P83CL580、P83CL882、P87C51RA2、P87C51RB2、P87C51RC2、P87C51RD2、P87C591、P87CL52x2、P87CL54x2、P87CL888、P89C51RA2XX、P89C51RB2HXX、P89C51RB2XX、P89C51RC2HXX、P89C51RC2XX、P89C51RD2HXX、P89C51RD2XX、P89C5

	1X2、P89C52X2、P89C54X2、P89C58X2、P89C60X2、P89C61X2、P89C660、P89C662、P89C664、P89C668、P89C669、P89C738、P89C739、P89LV51RD2、P89V51RD2、PCD50913、PCD50917、PCD50923、PCD50927、PCD50933、PCD50937、PCD50953、PCD50957、PCD6001、PCD6002、PCD6003、SAA5645HL、SAA5647HL、SAA5665HL、SAA5667HL、TDA8006、TDA8008、TDA8028、TDA8029
SST	SST89C54、SST89C58、SST89C59、SST89E554、SST89E554A、SST89E554RC、SST89E554RD、SST89E564、SST89E564RC、SST89E564RD、SST89F54、SST89F58、SST89V554、SST89V554、SST89V554RC、SST89V554RD、SST89V564、SST89V564RC、SST89V564RD、SST89E516RD2、SST89V516RD2、SST89E52RD2、SST89V52RD2、SST89E54RD2、SST89V54RD2、SST89E58RD2、SST89V58RD2、SST89E51RC、SST89V51RC、SST89E52RC、SST89V52RC、SST89E54RC、SST89V54RC、SST89E51LC、SST89V51LC、SST89E52LC、SST89V52LC、SST89E54LC、SST89V54LC
STC	STC89C51RC、STC89C52RC、STC89C53RC、STC89C54RD+、STC89C58RD+、STC89C516RD+、STC89LE51RC、STC89LE52RC、STC89LE53RC、STC89LE54RD+、STC89LE58RD+、STC89C516RD+、STC89LE58AD、STC89LE516AD、STC89LE516X2、STC89C58RD、STC89C516RD、STC89LV516RD
SyncMos	SM8951A、SM8952A、SM8954A、SM8958A、SM89516A、SM5964、SM59264、SM79164、SSU7301/SM79108、SM5964A、SM89S16R1、SM89T16R1
TI	MSC1200Y2、MSC1200Y3、MSC1210Y2、MSC1210Y3、MSC1210Y4、MSC1210Y5 、MSC1211Y2、 MSC1211Y3、MSC1211Y4、MSC1211Y5、MSC1212Y2、MSC1212Y3、MSC1212Y4、MSC1212Y5
Winbond	W77C32、W77C512、W77C516、W77C58、W77E468、W77E516、W77E532、W77E58、W77IC32、W77IE58、W77L32、W77LE516、W77LE532、W77LE58、W77X32、W78C32B、W78C32C、W78C33B、W78C354、W78C438C、W78C516、W78C51D、W78C52D、W78C54、W78C58、W78C801、W78E/78C378、W78E354、W78E365、W78E374B、W78E516、W78E516B、W78E51B、W78E52、W78E52B、W78E532、W78E54、W78E54B、W78E58、W78E58B、W78E858、W78ERD2、W78IE52、W78IE54、W78IRD2、W78L32、W78L33、W78L51、W78L52、W78L54、W78L801、W78LE365、W78LE51、W78LE516、W78LE52、W78LE54、W78LE58、W78LE812、W78x374、W79E532

Notes: Not list all supported devices

1.6 Register

Before using the JY2X00 Emulation and Development System, the user should log on our website for register. In this way, we just efficiently provide satisfied service for you, and get you timely informed about the latest trend in product.

Tianjin Weilei Technology Ltd.
Tel:86-22-87891218
Fax:86-22-87891221
Website:www.weilei.com
E-mail:support@weilei.com.cn

1.7 Service

When using the JY2X00 Emulation and Development System, please give us your advice, request and technical questions.

Our website also provides BBS forum for you. We provide answers and take your feedback. And the registered members also can response and share your experience.

1.8 Repair

To ensure the highest quality to our customers, Juyang has a very reliable and stable system. In addition, all our products undergo a strict test before leaving the factory to ensure product stability and reliability.

In case the product is damaged (in use), please mail it to the maintenance department of our company, we'll provide fast service for you.

We make the commitment: Guarantee in one year; life-long maintenance, only take in cost fee.

Notes: CPLD and FPGA are not warrantable, but offers maintaining service, only take in cost fee.

2、Hardware

2.1 Hardware Structures

JY-E2X00 EMULATOR consists of five parts. They are Emulator Adapter, Emulator Host, Cable for connection between Emulator adapter and Emulator Host, USB Cable for connection between Emulator Host and PC, a Power Adapter. Each part is shown as follows:

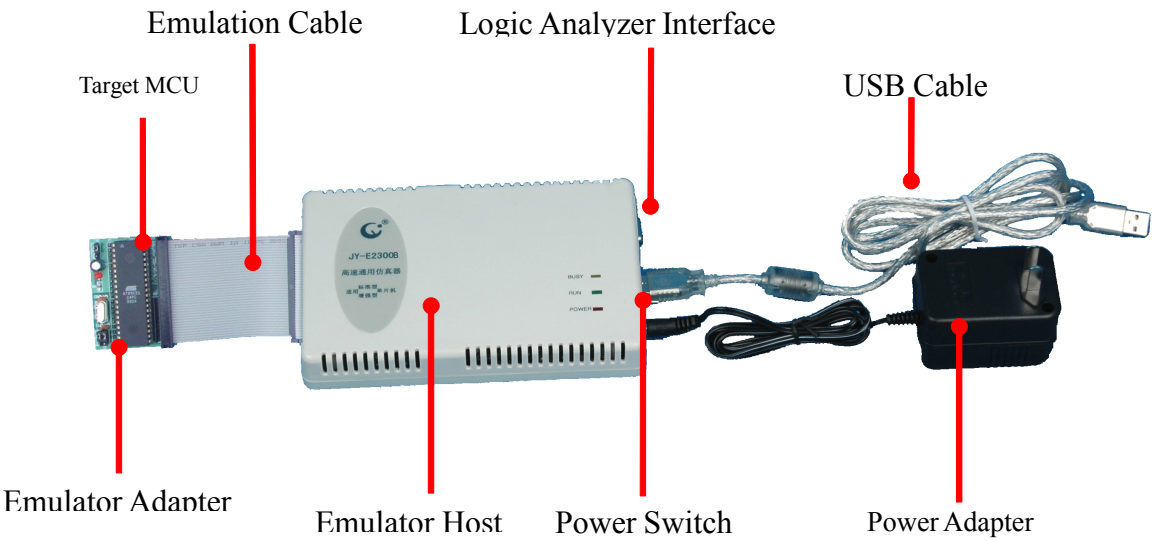


Figure 2-1

2.1.1 Emulator Host

There are three LED at the bottom right of upper cover. They are respectively Power (red LED), RUN (green LED), and BUSY (yellow LED). On the margin left, there is the 40-pin emulation interface. On the margin right, there are the LOGIC interface, USB interface, Power Switch and Power Jack.

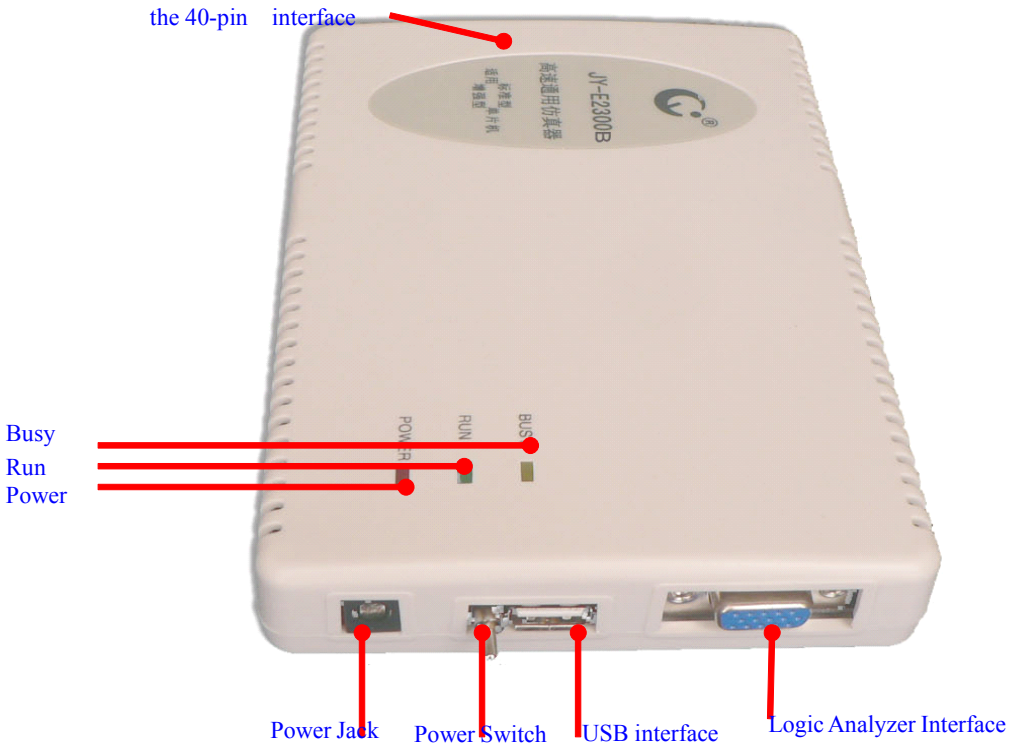


Figure 2-2 JY-E2X00 Emulator Out

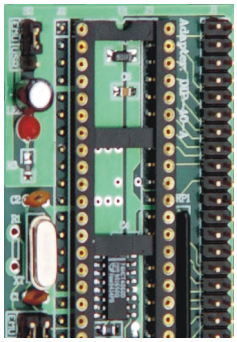
2.1.2 Emulator Adapter and Cable

This 40 wires flat cable which connects Emulator Probe Assembly and Emulator Host ensures reliable communication up to 40MHz system clock.

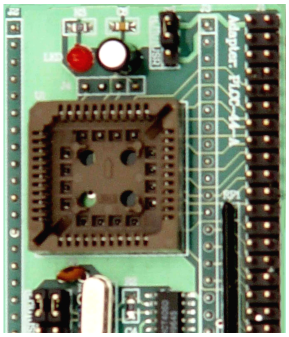
We provide five types of Emulator Adapter for customer:

1. DIP-40 adapter
2. PLCC_44 adapter
3. PLCC-68 adapter
4. JY_USER40 adapter
5. DIP-20 conversion head

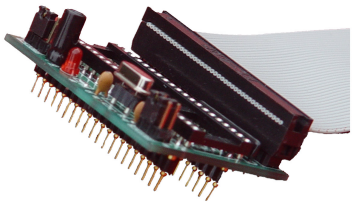
Different devices in same pin arrangement and same package share one adapter. We also provide a in-circuit emulation adapter, but the user should design a interface for emulator on your target board.



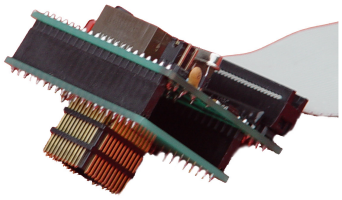
DIP-40 device adapter



PLCC-44 device adapter



DIP-40 device adapter



PLCC-44 device adapter

Figure2-3 device adapter

(1) DIP-40 device adapter

DIP-40 adapter configuration is shown in figure 2-4, the connection with emulator is shown in figure 2-5:

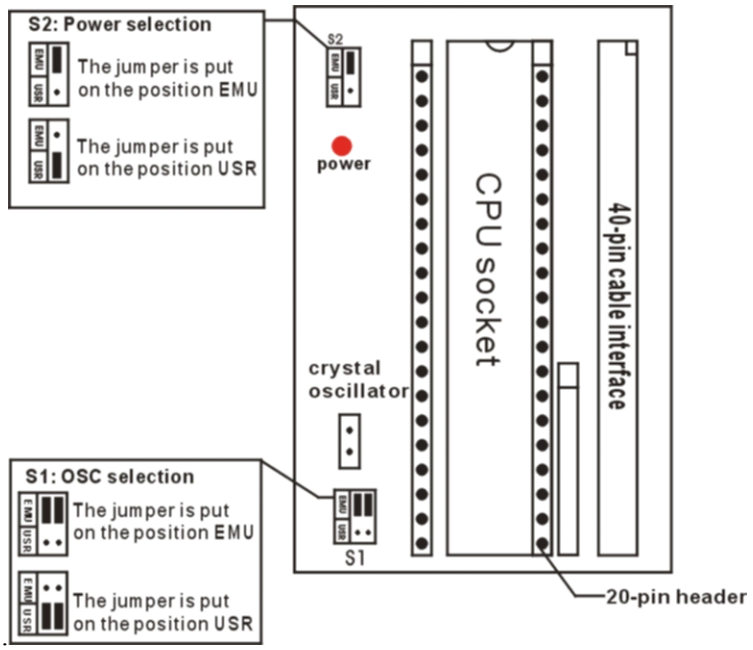


Figure 2-4 DIP-40 device adapter

(2) PLCC-44 device adapter

PLCC-44 adapter configuration is shown in figure 2-6, the connection with emulator is shown in figure 2-7:

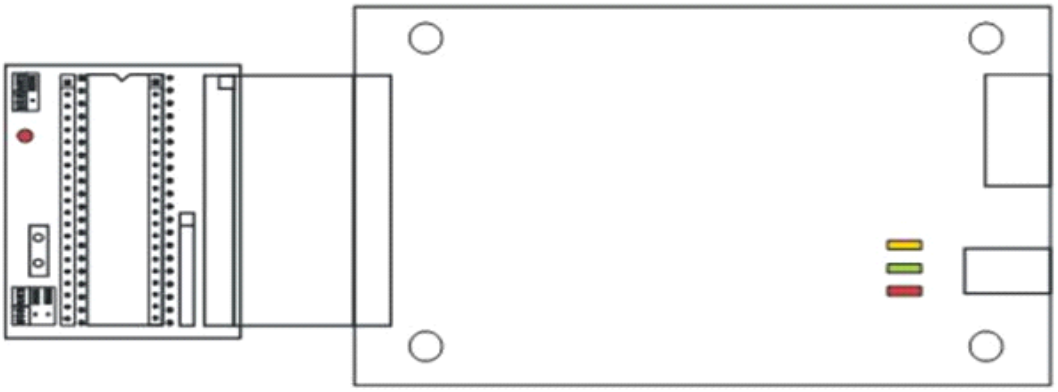


Figure 2-5 DIP-40 device adapter connect with emulator

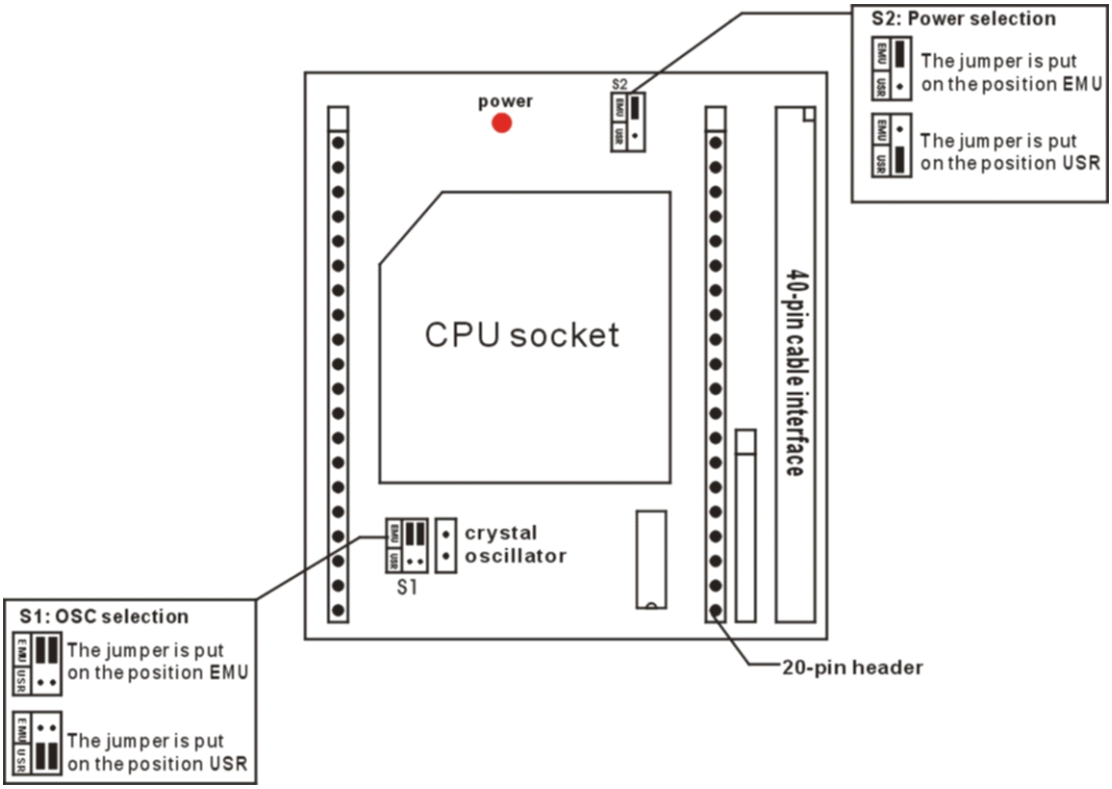


Figure 2-6 PLCC-44 device adapter

Jumper Settings:

	EMU	USR
S1	Selection of the crystal oscillator on the adapter	Selection of the crystal Oscillator on the target board
S2	adapter derives its power from the Emulator	adapter derives its power from target board

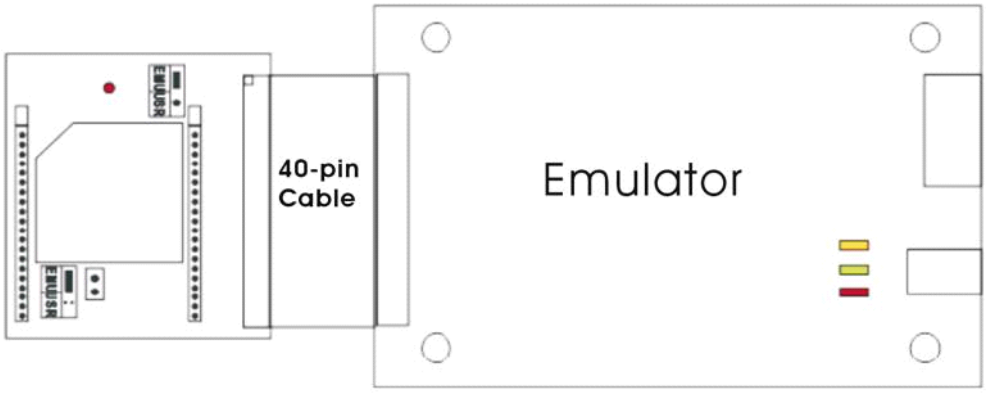


Figure 2-7 PLCC-44 device adapter connect with emulator

(3) In-Circuit Emulation interface Circuit

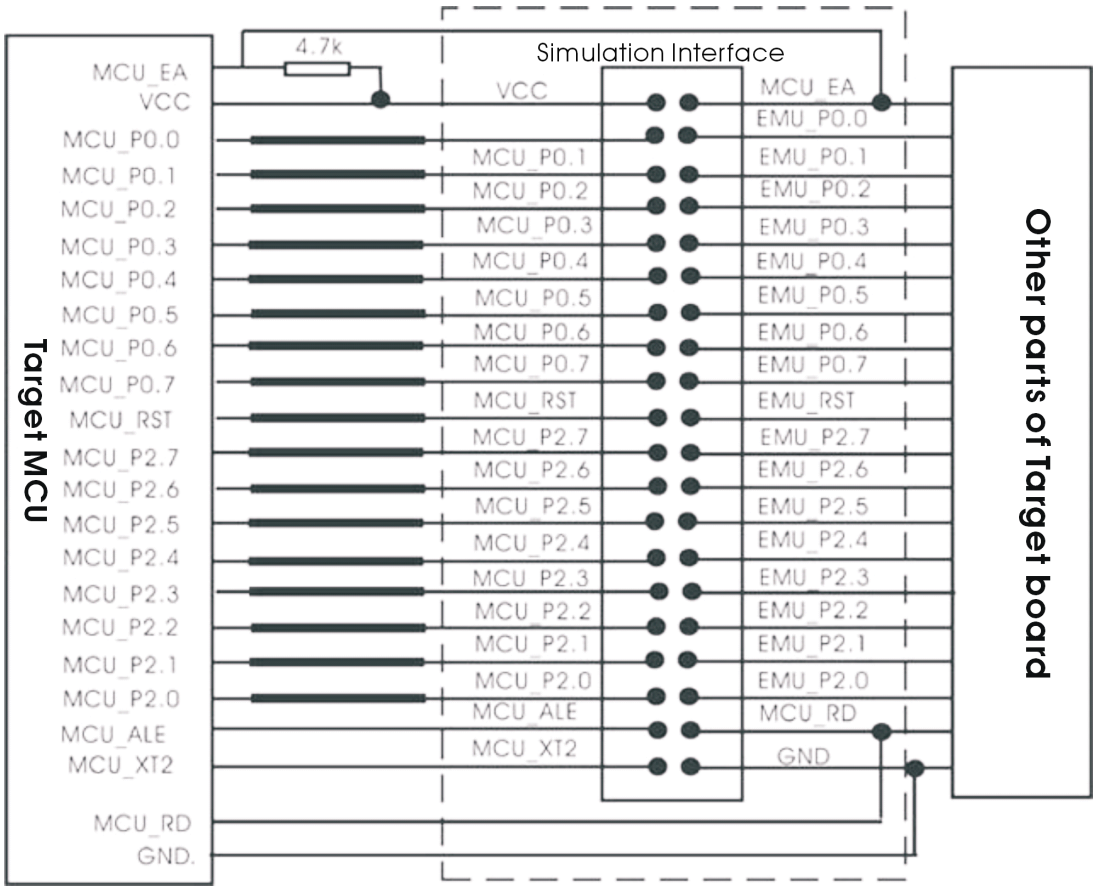


Figure 2-8 In-Circuit Emulation interface Circuit

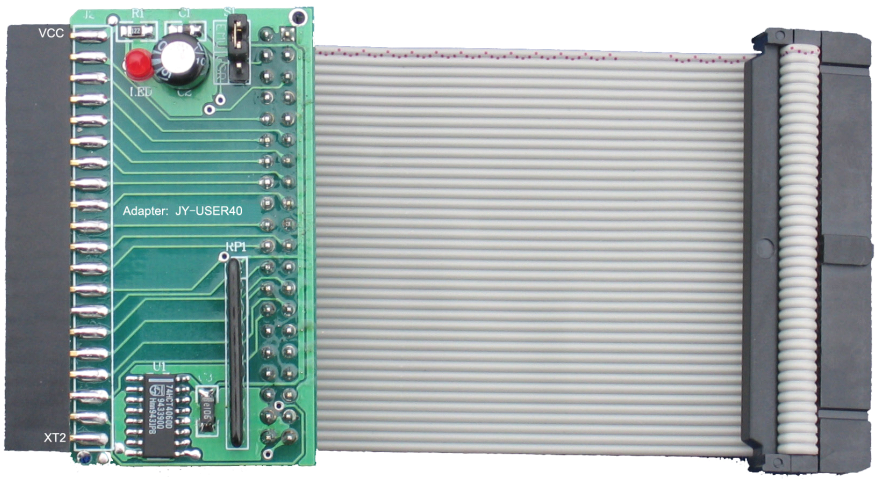


Figure 2-9 JY-USER40 Emulation Adapter

Interface for in-circuit emulation (twenty-position dual-row header with 0.025 inch square pins) is connected to the JY-USER40 adapter. **The thick lines (shown as Figure 2-8) are only connected to target MCU, not connected to the other devices.**

(4) How to use the DIP-20 conversion head

·insert the AT89C51 device into the socket in the DIP-40 adapter;

·insert the DIP-40 adapter into the socket in the conversion head;
·Insert conversion head pin into the socket in the user's target board;
·Select the AT89C51 device from Device Database for your project.

2.1.3 Cable of Emulator Host

The RS-232 /USB cable is for high speed communication between Emulator Host and PC. Its length is 1.5 meters.

2.1.4 Power Adapter

This module supply 9V DC power for Emulator Host. Output is DC 9V/100 mA, Input is AC220V+10%.

2.2 Hardware Connection

After choosing right CPU according to user's application, the parts connection of Emulator can be made as follows:

(1) Connect Emulation target system

① Choose right adapter according to user's application;
② Insert target CPU into the socket in the adapter;
③ Insert the adapter into the socket that in target board. Please pay attention to the position of the first pin;
④ Set jumper on the adapter (use default settings if none specified);
⑤ Connect the adapter and Emulator Host with 40-pin cable.

(2) Connect communication cable

Connect the Emulator Host and PC with USB cable

(3) Install JY-E2X00 USB driver

① install JY2X00 Debugger or JY-E2X00 Emulator for Keil driver;
② turn off the power, and connect the power adapter;
③ turn on the power, new hardware found be shown, then Windows 2000/XP Operating System will automatically finish installation.

Go to "Device Manager" > "Universal Serial Bus Controllers", the user could find"JY-E2X00 USB Driver" after installation. It is shown in figure 2-10:

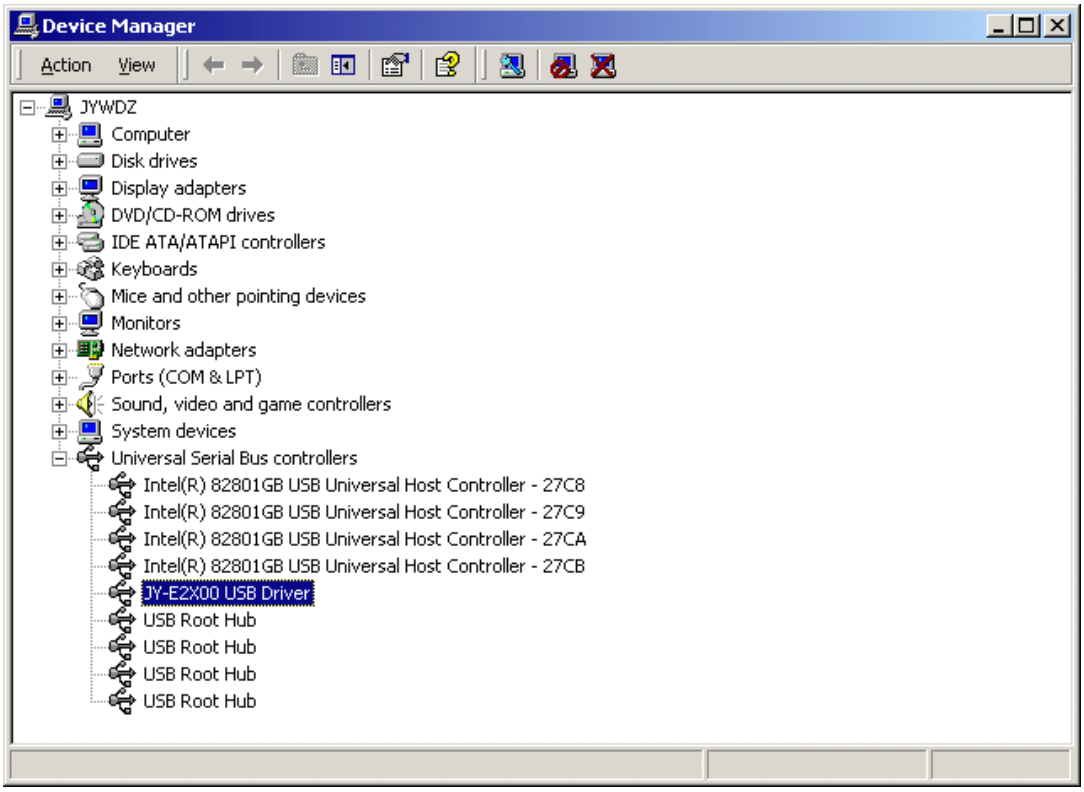


Figure 2-10 Device Manager

(4) power-on test

Connect system according to Figure 2-1, turn on the power, then you could see:

① the power lamp immediately lights up;

② Then the BUSY Lamp lights up for about 1 minute;

③ After BUSY lamp winking out, the RUN lamp shine:

Otherwise, please turn off the power immediately and check the following:

① Whether the direction of emulation adapter is correct;

② Whether there is a crystal oscillator in the emulation adapter;

③ Whether clock cycle of the target CPU or manufacturer is changed. if yes, please initialize emulator;

④ if the clock cycle 6T/4T microchip, please select the short 40 wires cable

⑤Some chips couldn't execute to the start of user application code at address 0000h even EA = 0; Please erase their security bit.

⑥ Some chips need to configure "**Boot Status Byte**" **(BSB). Its default value is "0xFF".** You should change the value to "0x00" with programmer before emulating.

NOTES: The above conditions could lead to lighten the three LEDs. You should check according to the above show.

If adapter derives get power from the emulator, please turn on the emulator power first, then turn on the target system power; If adapter derives get power from target board please turn on the target system power first, then turn on the emulator power.

NOTES:

•Make sure the power is off before connecting the emulator system; •Do not operate Emulator in bad environment, such as high temperature ,quaky, moist and so on;

•make sure the input voltage is less than 5.5V;

•It is very necessary to check the hardware connection before turning the power on;

•Don't dismantle the JY-E2X00 emulator without permission.

3、JY-E2X00 for Keil

3.1 install the JY-E2X00 for Keil driver

Debugging JY-E2X00 emulator in Keil uVision x, you should install the JY-E2X00 for Keil driver. Please perform the following steps:

1 、 Put the installation CD into the CD-ROM, and CD autorun enable. The interface included installation information is shown in figure 3-1.

Figure 3-1

2、 Then double click the "Setup JY-E2X00 for Keil Driver" to install. Just select the driver you want, what is shown in figure 3-2.

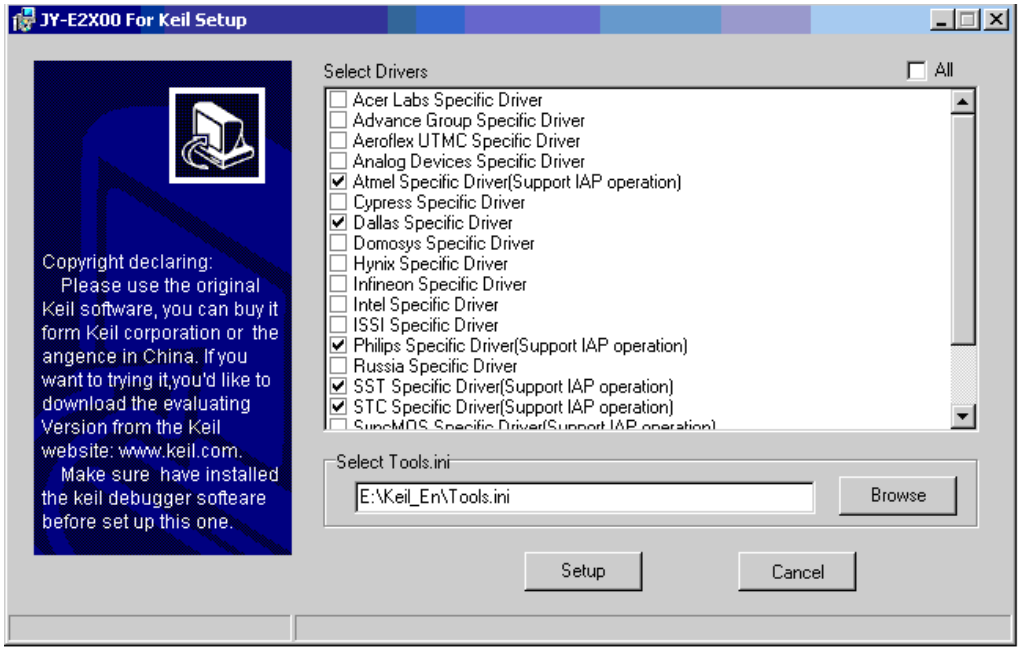

JY-E2X00 For Keil Setup
Copyright declaring:
Please use the original Keil software, you can buy it form Keil corporation or the angence in China. If you want to trying it,you'd like to download the evaluating Version from the Keil website: www.keil.com.
Make sure have installed the keil debugger softeare before set up this one.
Select Drivers
All
Acer Labs Specific Driver
Advance Group Specific Driver
Aeroflex UTMC Specific Driver
Analog Devices Specific Driver
Atmel Specific Driver(Support IAP operation)
Cypress Specific Driver
Dallas Specific Driver
Domosys Specific Driver
Hynix Specific Driver
Infineon Specific Driver
Intel Specific Driver
ISSI Specific Driver
Philips Specific Driver(Support IAP operation)
Russia Specific Driver
SST Specific Driver(Support IAP operation)
STC Specific Driver(Support IAP operation)
Select Tools.ini
E:\Keil_En\Tools.ini
Browse
Setup
Cancel

Figure 3-2 JY-E2X00 for keil setup

3、 Set Debug Options

The dialog **Options for Target - Debug,** shown in figure 3-3, configures the µVision3 debugger.

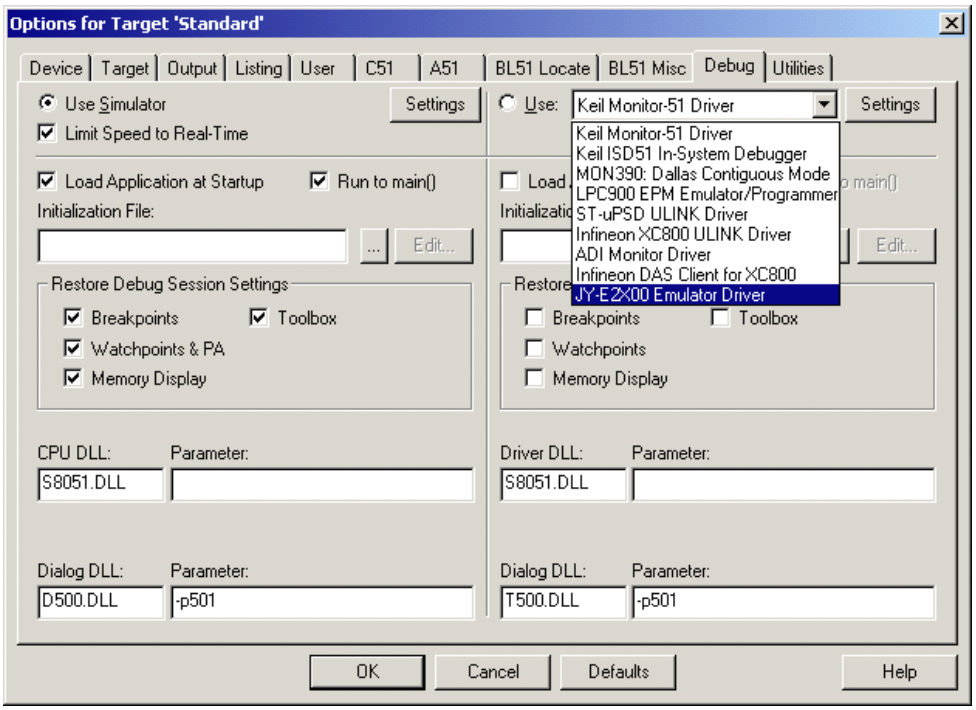


Figure 3-3 Drivers of target device in the drop-down list

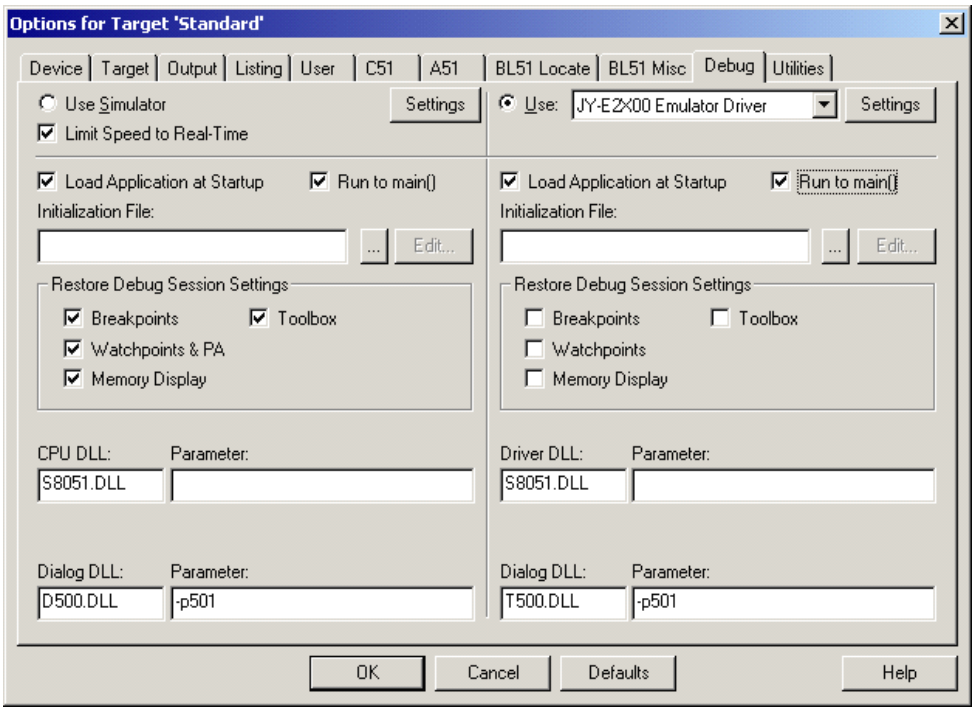


Figure 3-4 Option for Target standard

3.2 Hardware simulation parameters setting

Click “Settings”, open the “JY-E2X00 Emulator Drivers” dialog box (as shown in figure 3-5):

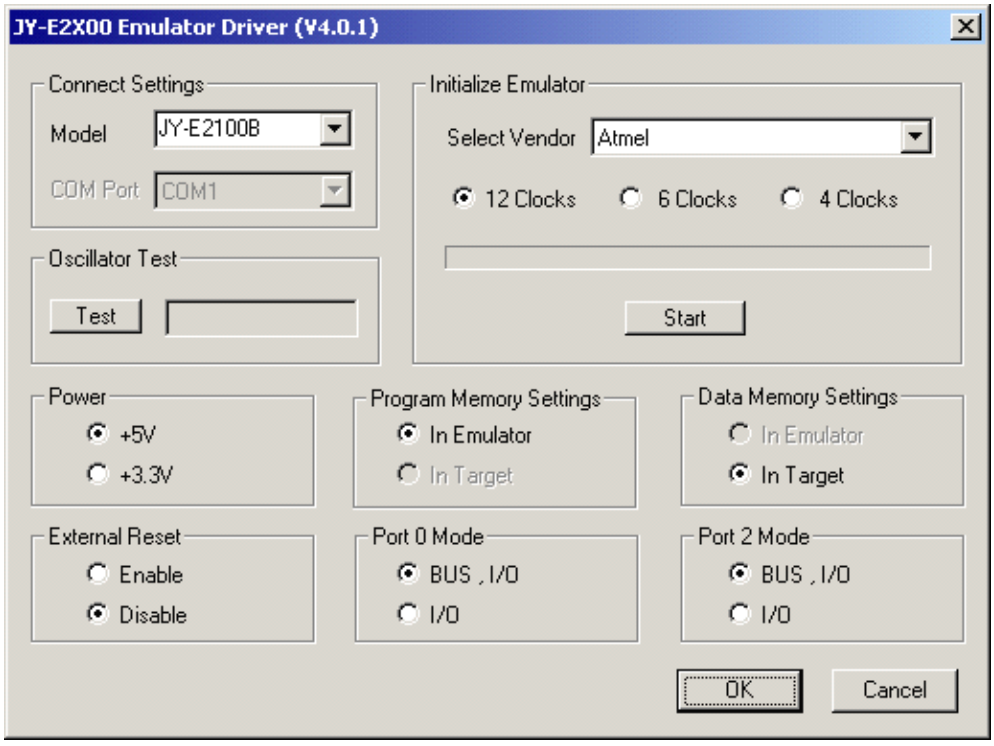


Figure 3-5 set simulation parameters

- Communication mode

Select emulator model you want. If select “JY-E2100A(com)”, “JY-E2200(com)” , “JY-E2300(com)”, you also should select “com” that you use.

- Initialize emulator

You should initialize emulator at any condition as below:

The manufacturers of target chip have been modified;

The clock cycle of target chip has been modified;

Have updated the driver;

Click “Start” button, displays a message box (as shown in figure 3-6). Then click “Yes” to start initializing:

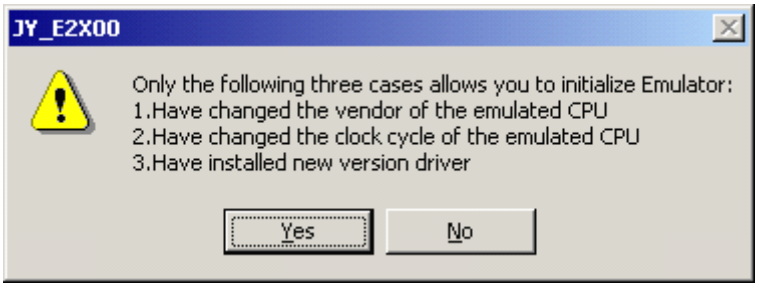

JY_E2X00
Only the following three cases allows you to initialize Emulator:
1.Have changed the vendor of the emulated CPU
2.Have changed the clock cycle of the emulated CPU
3.Have installed new version driver
Yes
No

Figure 3-6 Initialize emulator

Dialog Item	**Description**
Oscillator frequency	Test Oscillator frequency
In Emulator (program)	ROM in emulator acts as program memory
In target (program)	ROM in target chip acts as program memory
In Emulator (Data)	RAM in emulator acts as data memory
In target (Data)	RAM in target chip acts as data memory
Bus、I/O (P0)	P0 acts as bus and input/output port
I/O (P0)	P0 acts as only input/output port
Bus、I/O (P2)	P2 acts as bus and input/output port
I/O (P2)	P2 acts as only input/output port
Power +5V	Provide +5v power to target chip
Power +3.3V	Provide +3.3v power to target chip
Disable	External reset disable
enable	External reset enable

4、JY2X00 Debugger

4.1 Setup JY2X00 Debugger

To install JY2X00, please perform following steps:

1. Put the installation CD into the CD-ROM
2. After CD autorun enable, and then double click the “Setup JY2X00 Debugger” to install.

JY2X00 Debugger support the keil C51 compiler, the user should install the keil C51 compiler. (please purchase your own or download from correlative website)

4.2 JY2X00 Debugger

The JY2X00 IDE is the software independently developed by our company, which include hardware debugging and software debugging.

It provides easy access to some of the Apple applications on your machine, displays which applications are currently running, and holds windows in their minimized state. For your convenience, you can add your own applications, files, and folders to the Dock too.

Dockable window is proven to be the most effective solution to the limited screen space problem and complex window layout.

Project Explorer and Project Status, you can hide them or change their position very easily.

The JY2X00 IDE combines project management, make facilities, source code editing, program debugging, and complete simulation in one powerful environment, as shown in figure 4-1. JY2X00 helps you get programs working faster than ever while providing an easy-to-use development platform. The editor and debugger are integrated into a single application and provide a seamless embedded project development environment. The common shortcut keys are shown in table 4-1.

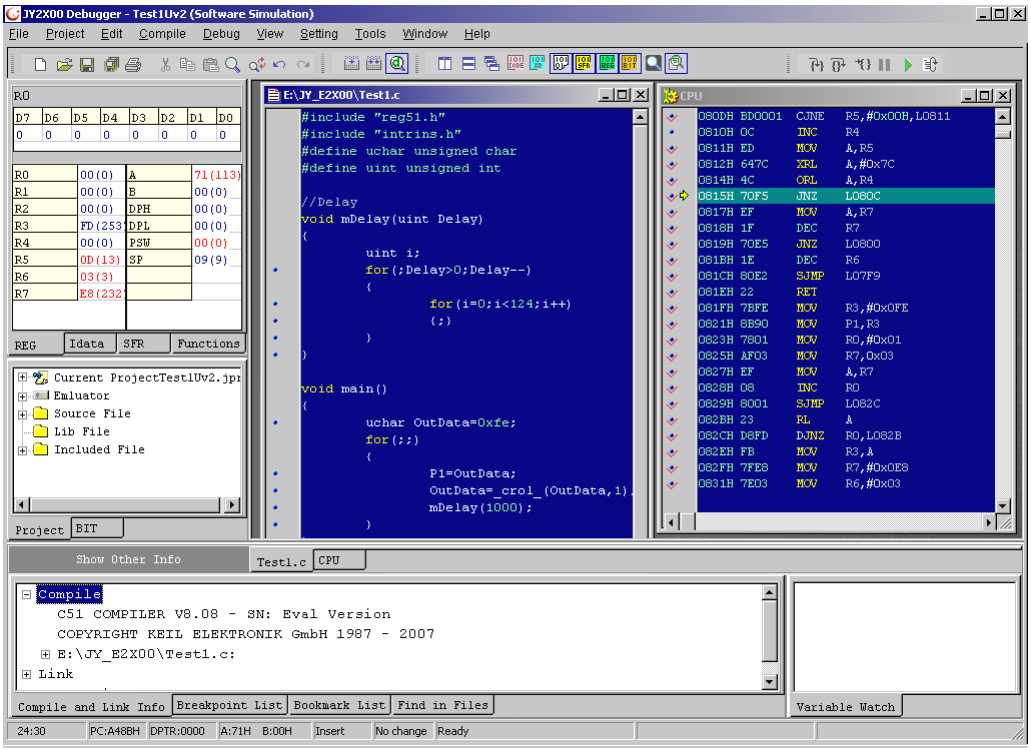


Figure 4-1 JY2X00 main window

Table 4-1 shortcut keys

F1	Help	F5	Enable/Disable Breakpoint
CTRL+F9	Compile	F6	Insert/Remove Breakpoint
CTRL+F10	Compile All	CTRL+S	Save
F7	Step in	CTRL+X	Cut
F8	Step Over	CTRL+F	Find…
F9	Run	CTRL+P	Print
CTRL+T	Run till address	CTRL+C	Copy
F4	Run to Cursor	CTRL+N	New…
CTRL+F8	Pause	CTRL+O	Open…
CTRL+F2	Reset	CTRL+R	Replace…
CTRL +J	Set PC…	CTRL+Y	Delete
CTRL +Shift+（0-9）	Toggle Bookmark	CTRL+V	Paste
CTRL+（0-9）	Jump to Bookmark		

4.3 Menu

4.3.1 File menu

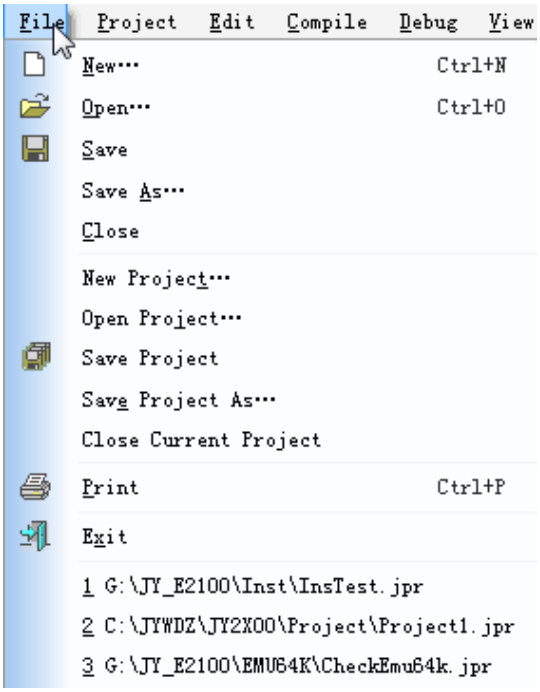


Figure 4-2 File menu

- New(N) ... Ctrl+N Create a new source or text file
- Open(O) ...Ctrl+O Open an existing file
- Save(S) Ctrl+S Save the active file
- Save as(A)... Save and rename the active file
- Close(C) Close the active file
- New Project(T)… Create a new project
- Open Project(J)… Open an existing project
- Save Project Save current project
- Save Project as(E) Save and rename current project
- Close Project(L) Close current project
- Print(P) Ctrl+P Print the active file
- Exit(X) Quit JY2X00 IDE and prompt for saving files

4.3.2 Project

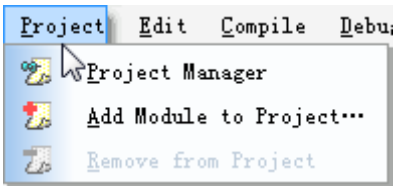


Figure 4-3 Project menu

- Project manager window
  Make the project manager window active, as is shown in figure 4-3:
- Add Module to Project
  Add a Group or File to the project
- Remove module from project
  Remove a Group or File from the project

4.3.3 Edit

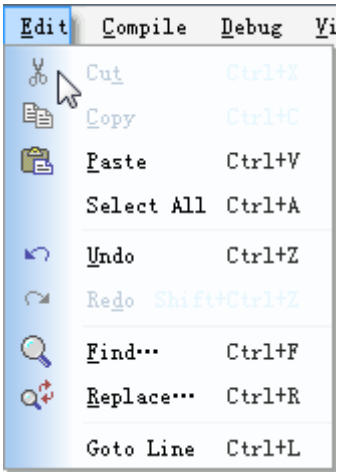


Figure 4-4 Edit menu

- Cut Ctrl + X
  Cut selected text to clipboard
- Copy Ctrl + C
  Copy selected text to clipboard
- Paste Ctrl + V
  Paste text from clipboard
- Select All Ctrl + A
  Select all text in the current file
- Undo Ctrl + Z
  Undoes the last action
- Redo Shift + Ctrl + Z

Redoes the last action

- Find…. Ctrl + F

Search text in the active file

- Replace… Ctrl + R

Replace specific text

4.3.4 Compile

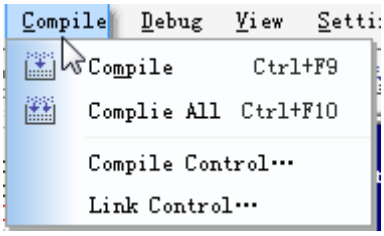


Figure 4-5 Compile menu

- **Compile(M) Ctrl + F9**

Compile modified files and build application

- **Compile All Ctrl + F10**

Re-Compile all source files and build application

- **Compile Control…**

Select conpiler control command

- **Link Contrl…**

Select Linker control command

4.3.5 Debug

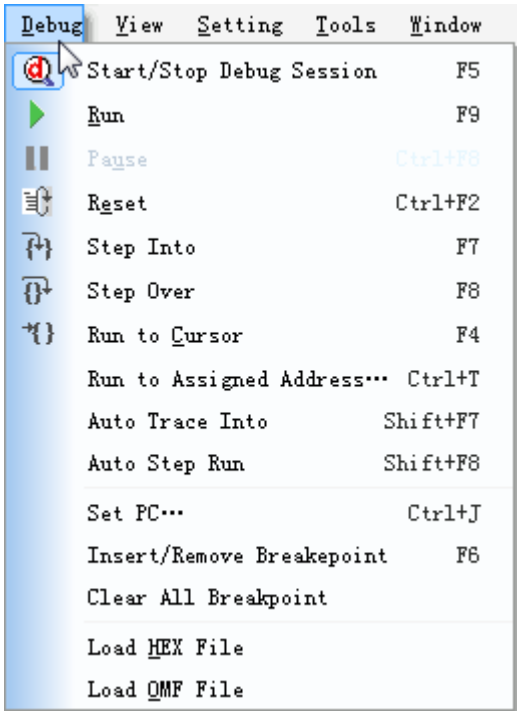


Figure 4-6 Debug menu

- **Start/Stop Debug Session F5**
  Start or stop Debug Mode
- **Go**
  Run (execute) until the next active breakpoint
- **Stop Running**

- **Reset**
  Set CPU to reset state
- **Step**
  Execute a single-step into a function
- **Step Over**
  Execute a single-step over a function
- **Runt to Cursor Line**
  Execute until the current cursor line is reached
- **Run to Assigned Address**
  Execute until the assigned address is reached
- **Anto Trace run**
  Autorun trace step by step
- **Auto Step Run**
  Auto Execute a single-step over a function
- **Set PC**
- **Enable/Disable Breakpoint**
  Enable/disable breakpoint on current line
- **Remove All Breakpoint**
  Remove all breakpoints in the program
- **Load .hex file**
  Load the hex-file into a simulator, or into the target hardware
- **Load .omf file**
  Load the omf-file into

4.3.6 View

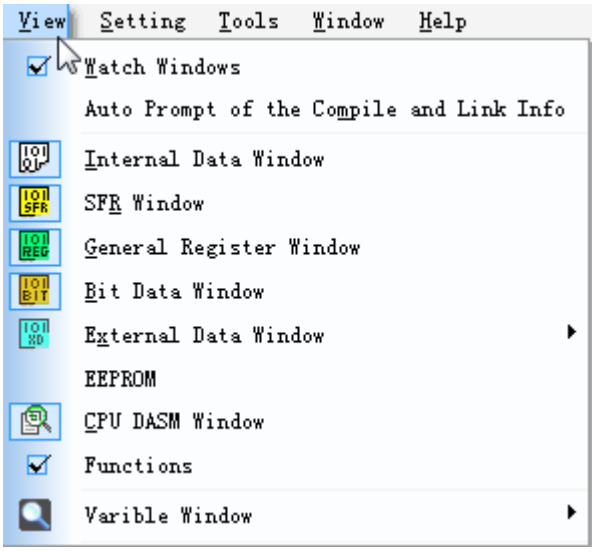


Figure 4-7 View menu

- **Watch Window**
  Show or hide the Watch Window
- Display the compiling and linking information
  When you build an application with syntax errors, JY2X00 will display errors and warning messages in the **Show other info – Compile and link** info. A double click on a message line opens the source file on the correct location in a editor window.
- **Internal Data Window**
  Show or hide the Internal Data Window
- **SFR Window**
  Show or hide the SFR Window
- **General register Window**
  Show or hide the General register Window
- **Bit Data Window**
  Show or hide the Bit Data Window
- **External Data Window**
  Show or hide the External Data Window
- **Disassembly**
  Show or hide the Disassembly window
- **Functions**
  Show the user function.
- **Variable Window**
  Show the user variable including name, type and value

4.3.7 Settings

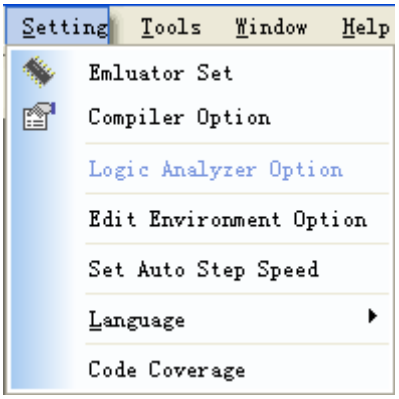


Figure 4-8 Setting menu

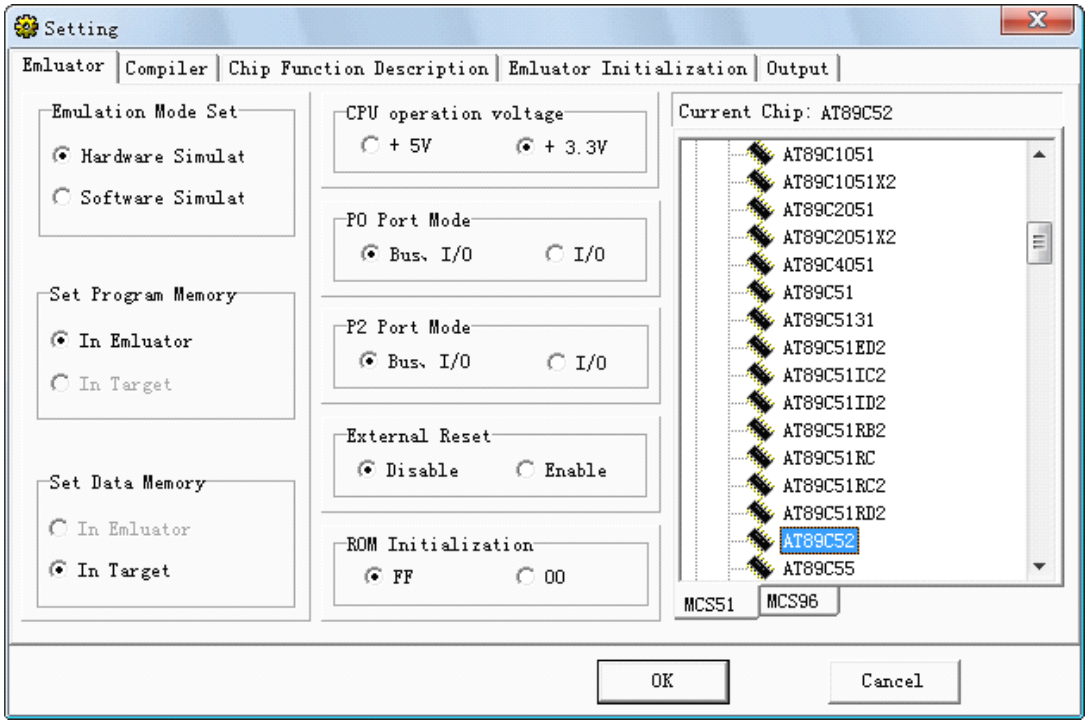


Figure 4-9 Emulator setting

- Set emulator options
  The dialog **Settings - Emulator** configures the JY-E2X00 emulator.
  The following table describes the options of the Emulator dialog page:

Dialog Item	Description
Hardware Simulator	Need to connect JY-E2X00 emulator
Software Simulator	Not need to connect JY-E2X00 emulator
In Emulator (program)	ROM in emulator acts as program memory
In target (program)	ROM in target chip acts as program memory

In Emulator (Data)	RAM in emulator acts as data memory
In target (Data)	RAM in target chip acts as data memory
Bus、I/O (P0)	P0 acts as bus and input/output port
I/O (P0)	P0 acts as only input/output port
Bus、I/O (P2)	P2 acts as bus and input/output port
I/O (P2)	P2 acts as only input/output port
Power +5V	Provide +5v power to target chip
Power +3.3V	Provide +3.3v power to target chip
Disable	External reset disable
enable	External reset enable
FF (reset value)	Reset value of ROM is FF
00	Reset value of ROM is 00

- Set compiler options

4.3.8 Tools

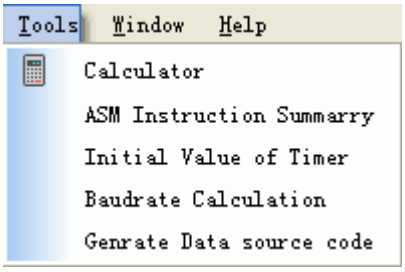


Figure 4-10 Tools menu

- Calculator
  Call the Windows Calculator
- ASM Instruction Summary
  MCS-51 instruction set summary
- Initial Value of Timer
  Calculate the initial value of timer
- Baudrate Calculation
  Calculate the baudrate
- Generate data source

4.3.9 Window

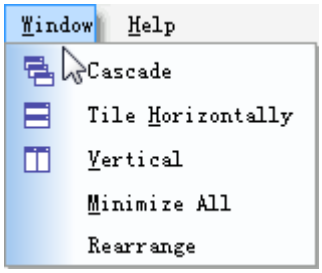


Figure 4-11 Window menu

- Cascade
  Arrange the Windows so they overlap
- Tile Horizontally
  Arrange the Windows so they no overlap
- Tile Vertically
  Arrange the Windows so they no overlap
- Minimize All
  Minimize to hide all active windows
- Arrange Icons
  Arrange Icons at the bottom of the window

4.3.10 Help

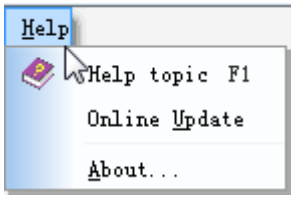


Figure 4-12 Help menu

- Open JY2X00 context help file
- Check **http://www.jywdz.com.cn** for available updates

4.4 Creating Applications

4.4.1 Create Project File and Select CPU

To create a new project file select from the JY2X00 Debugger menu **File – New Project…**. This opens a standard Windows dialog that asks you for the new project file name. You should use a separate folder for each project. You can simply use the icon **Create New Folder** in this dialog box to get a new empty folder.

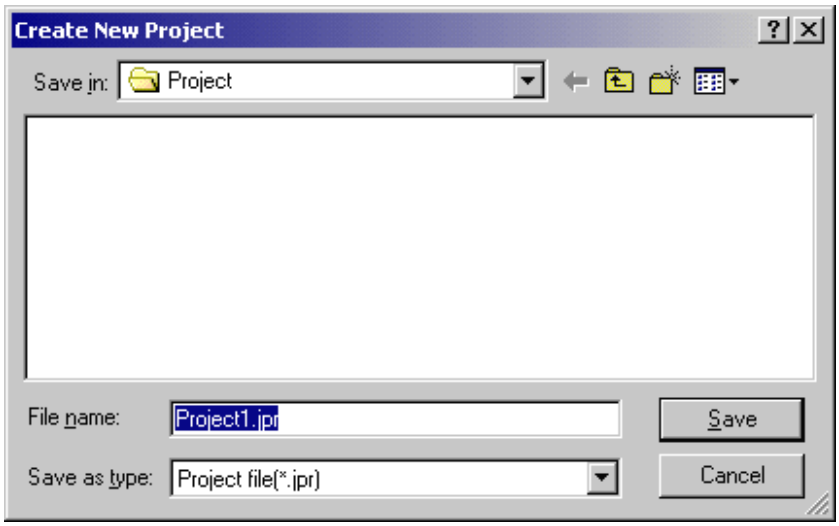


Figure 4-13 Create new project

Enter the file name for the new project, i.e. **Project1.jpr** .Click **Save** presented a dialog box “Emulator Settings” (as shown in Figure 4-9), perform the following steps:

- **Set Emulator**

When you create a new project JY2X00 asks you to select a CPU for your project. On the right of **Emulator** dialog box shows the JY2X00 device database. Just select the microcontroller you use. For the example in this chapter we are using the Atmel AT89C52 controller.

- **Set Compiler**

The dialog **Settings - Compiler** configures the compiler:

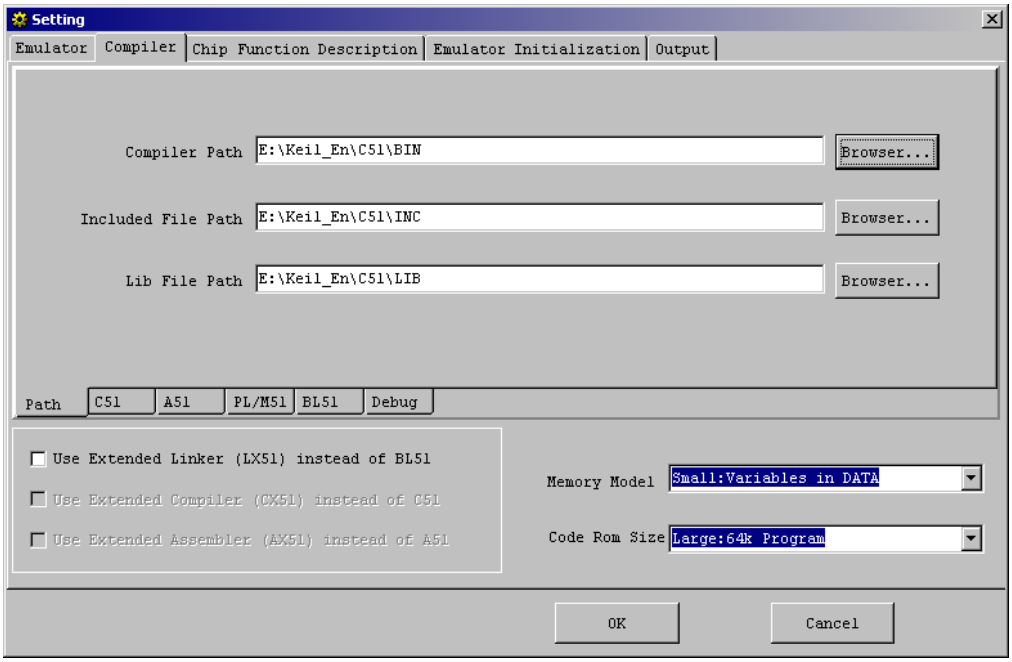


Figure 4-14 Configure path

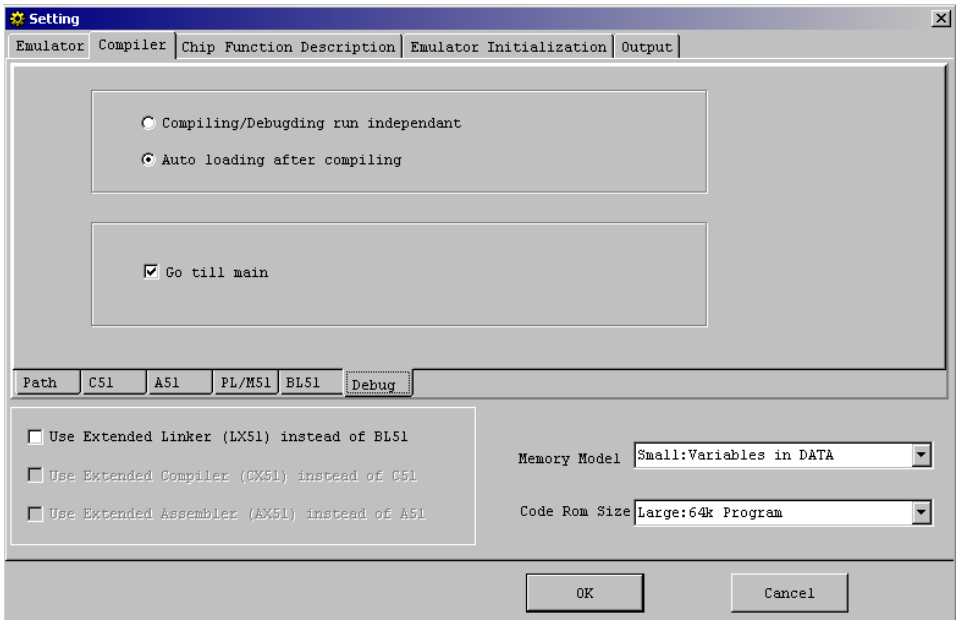


Figure 4-15 Configure debug options

- Initialize emulator

Click" Initialization", and displays the initialization Parameters dialog box;

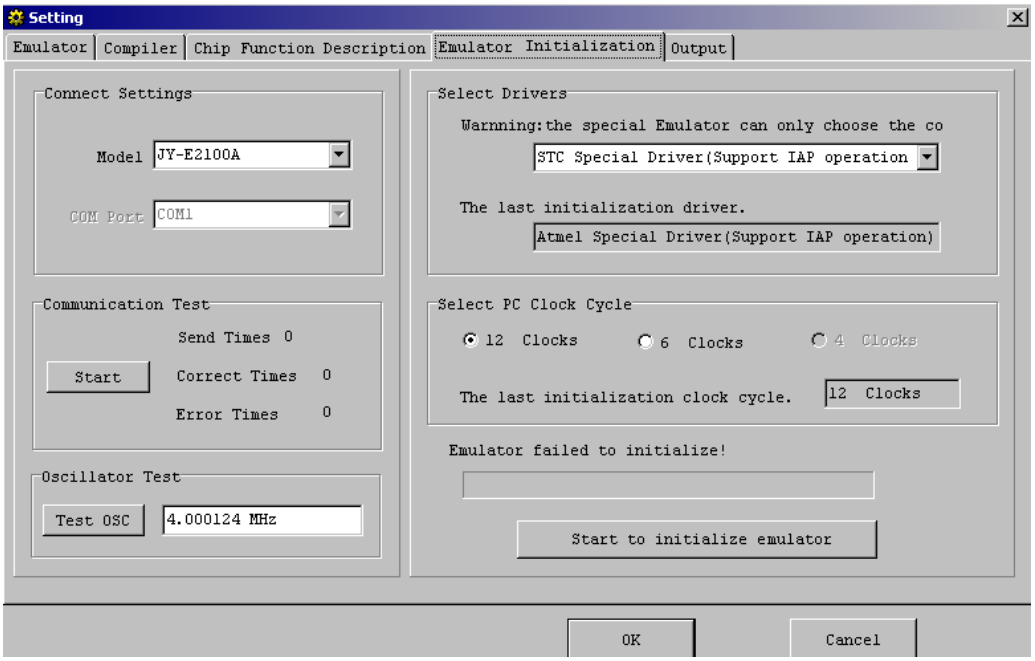


Figure 4-16 Emulator initialization

4.4.2 Create New Source Files

You may create a new source file with the menu option **File – New**. This opens an empty editor window where you can enter your source code. JY2X00 Debugger enables the keyword color syntax highlighting when you save your file with the dialog **File – Save As…** under a filename with the extension *.C. or *.ASM.

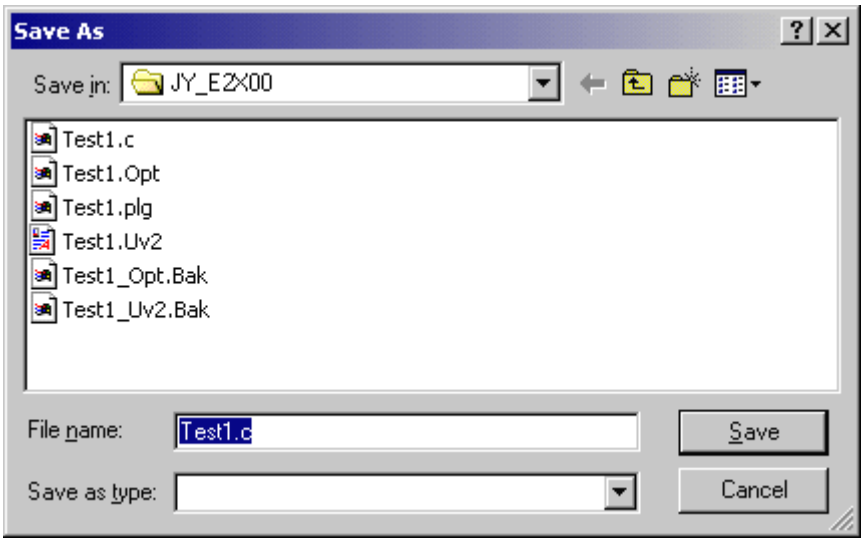


Figure 4-17 save source file dialoged file

Once you have created your source file you can add this file to your project. JY2X00 Debugger offers several ways to add source files to a project. For example,

you can select the file group in the **Project – Source Files** page and click with the right mouse key to open a local menu, shown in Figure 4-18. The option **Add Files** opens the standard files dialog. Select the file **Test1.C** you have just created. You can also add the module like the Figure 4-19 shown.

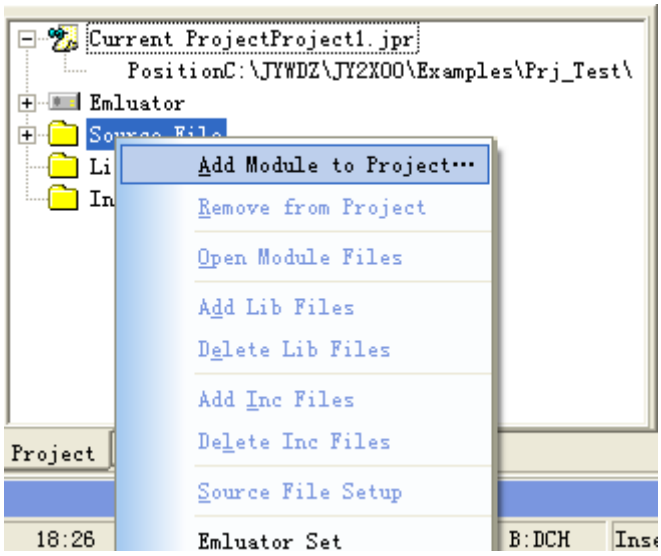


Figure 4-18 Add module to project

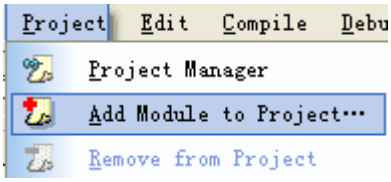


Figure 4-19 Add module to project by menu command

4.4.3 Compile Project

You may translate all source files and link the application with a click on the **Compile Target** toolbar icon. When you compile an application with syntax errors, JY2X00 will display errors and warning messages in the **Show other Info Window**. A double click on a message line opens the source file on the correct location in a JY2X00 editor window.

4.4.4 Debug Application Program

Once you have successfully generated your application you can start debugging. JY2X00 lets execute your application program in several different ways:

- With the **Debug Menu and Debug Commands**
- With the **Run till Cursor line** command in the local context menu

- Use the “step over ” command
- Use the “Run” command
- **Use the breakpoint**

Local the cursor line on the left “Gutter”, click left mouse (or F6) to insert breakpoint (shown in Figure 4-20). After you have tested your application, it is required to create an Intel HEX file to download the software into an EPROM programmer or simulator.

You can download the hex file to the chip directly by using a programmer.

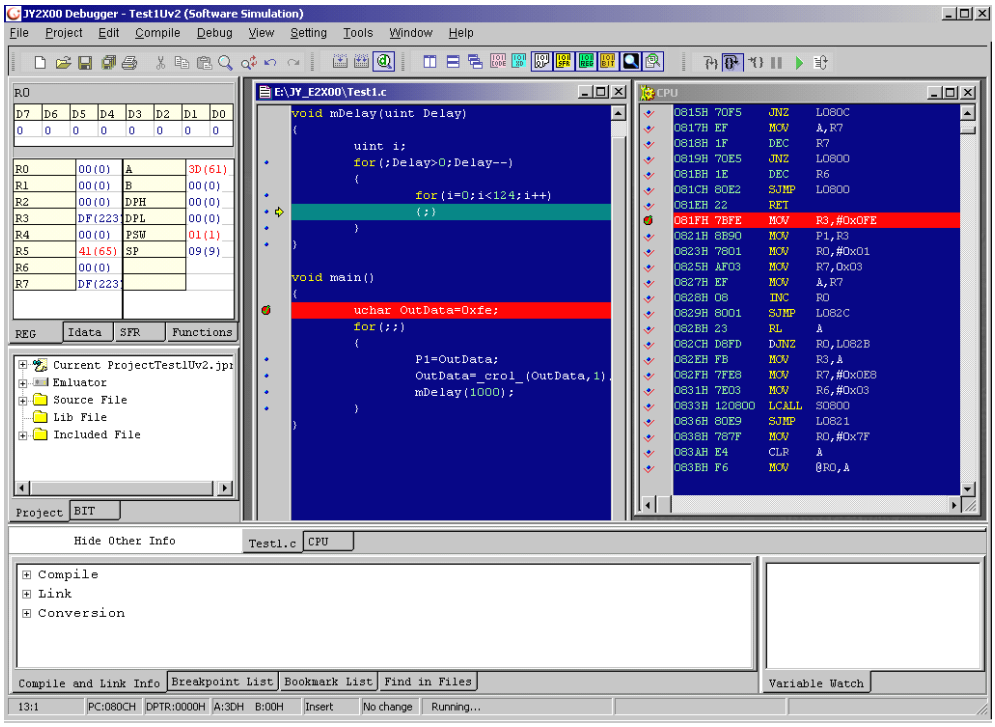


Figure 4-20 insert breakpoint

4.4. 5 Software Simulation

JY2X00 Debugger includes hardware debugging and software debugging. Select “Software Simulation” in emulation mode. As shown in following figure.

While we are in the software simulation mode, the code after compiling won’t be loaded into the emulator.

The steps of debugging are the same as that debugging the hardware simulation.

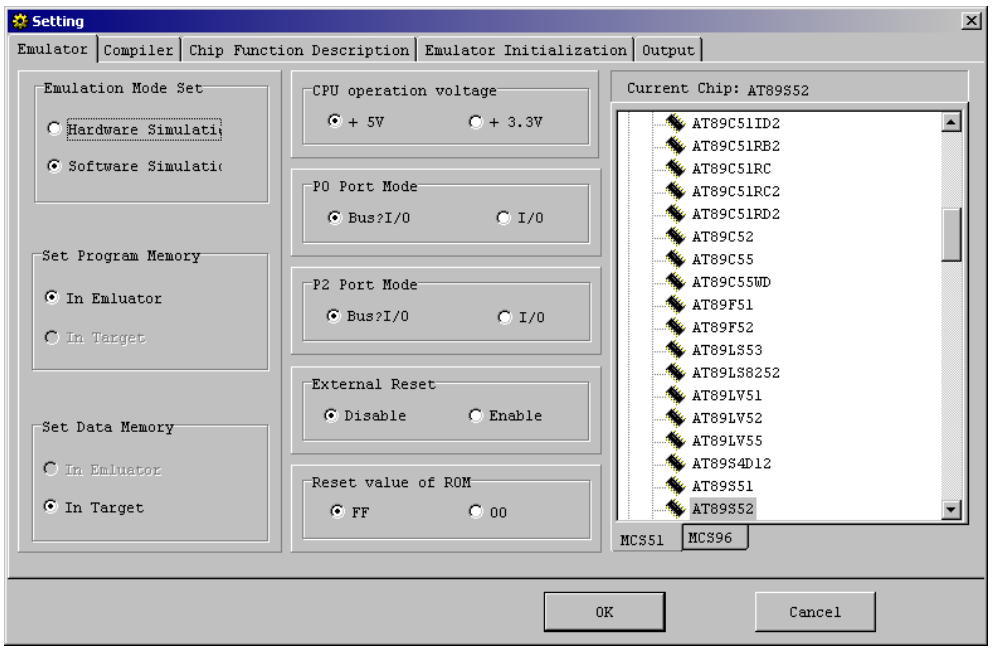


Figure 4-21 configure software simulation